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500.44034X00

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: Makio MIZUNO

Serial No.:   10/764,600

Filed: January 27, 2004

For: STORAGE SYSTEM

Group: 2186

Examiner: Not yet assigned

REQUEST FOR RECONSIDERATION

Commissioner for Patents   March 28, 2005
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In response to the Decision on Petition dated February 8, 2005,

reconsideration and withdrawal of the Decision is respectfully requested in view of

the following remarks.

REMARKS

Initially, in the Decision on Petition dated February 8, 2005, the Examiner

notes that the Petition to Make Special filed November 9, 2004 is defective for failing

to provide a complete detailed discussion of the most closely related references with

respect to claim 16. The Examiner states that "the main feature alleged to be absent

from the prior art is not actually claimed. For example, ". . . where the controller

controls the device to temporarily store block data . . . " (line 3, page 5 of the petition)

is not recited in the claims." However, since this limitation is recited in lines 6 and 7

of claim 1, Applicants assume the Examiner is specifically referring only to claim 16.

Applicants provide the following additional remarks including more details on the

cited references.

U.S. Patent No. 5,948,062 (Tzelnic et al.) discloses for network file access, a

plurality of data mover computers are linked to a cached disk array. Read-write files

stored in the cached disk array are accessible to network clients through more than

one of the data mover computers so that the data mover computers are not a

bottleneck to file access. The cached disk array stores a network file directory

including file locking information, and the data mover computers each have file

system software that accesses the network file directory for shared read-write file

access. The data mover computers perform the file system tasks such as managing

the file directory for mapping of file names to logical blocks and for locking and

unlocking of the files in order to minimize loading on the cached disk array.

Therefore, the network file server need not use any particular one of the data mover

computers to serve as a control point for read-write file access. Instead, file system

software for managing the file directory is replicated in each data mover computer.

The cached disk array recognizes logical block addresses, and the cached disk array

has a limited internal locking facility ensuring that reading or writing to a logical block

is an atomic operation. Preferably the data mover computers are commodity

personal computers.

U.S. Patent Publication No. 2003/0140207 A1 (Nagase et al.) discloses a

method for managing data stored in a hierarchical storage unit of a storage

apparatus. The storage unit includes a first storage medium having a first access

speed and a second storage apparatus having a second access speed. The first access speed is different from the second access speed. The method includes determining a first access frequency for information of first type, the first access frequency being associated with a first period of past time. A second access frequency of the information of the first type is determined. The second access frequency is associated with a second period of past time and is different than the first access frequency. At least a portion of the information of first type is transferred from the first storage medium to the second storage medium prior to a second period based on the second access frequency determined in the determining-a-second-access-frequency step, the second period corresponding to the second period of past time.

U.S. Patent Publication No. 2003/0204677 A1 (Bergsten) discloses a system, method and apparatus for providing and utilizing a storage cache descriptor by a storage controller. Bergsten provides the ability to effectively balance size of storage controller cache blocks and amount of data transferred in anticipation of such requests, such as requests by a host. An electronic data storage apparatus may include a storage device, a storage controller and a cache. The storage controller is communicatively coupled to the storage device, and is suitable for controlling data storage operations of the storage device. The cache is communicatively coupled to the storage controller, the cache suitable for storing electronic data access by the storage controller. The storage controller stores electronic data in the cache by including a cache descriptor that defines data contained in a cache block, the cache descriptor including at least one filed describing a device block of the cache block.

U.S. Patent Publication No. 2004/0148479 A1 (Patel et al.) discloses a method, system, and program for transferring data from a source storage unit, wherein storage units are configured within a storage system. A data transfer operation is processed to transfer data from source storage blocks in a source storage unit to corresponding target storage blocks in a target storage unit. For each source storage block, before transferring data from one source storage block to the corresponding target storage block, indication is made that the source storage block is in a locked state. Data in the source storage block in the locked state is not accessible to a host data request, and wherein data in storage blocks that are not in the locked state is accessible to a host data request while the data transfer operation is pending. Indication is further made that the source storage block is not in the locked state after transferring the data in the source storage block to the corresponding target storage block the data in the source storage block to the corresponding target storage block.

The present invention as recited in the claims filed are not taught or suggested by any of the above noted references whether taken individually or in combination with each other or in combination with any of the other references now of record.

The present invention as recited in the claims is directed to a cache storage system connected to a client and at least one storage device through a network that includes a controller and a device, where the controller controls the device to temporarily store block data which are exchanged between the client and the at least one storage device through the network and which designate a logical address on a

storage medium and a data length. Further, the present invention is directed to a network storage system including a proxy device connected to a network and disposed between a client and a cache storage system for acting as a substitute for the client, wherein the proxy device acquires information for identifying the cache storage system from a computer, executes client's access to at least one storage device through the cache storage system in place of the client on the basis of the identifying information and sends a result of the execution to the client.

It is submitted that the present invention is patentable over the references since the cited references, whether considered alone or in combination, fail to disclose or suggest the invention as claimed. In particular, the cited references, at a minimum, fail to disclose or suggest a cache storage system that includes a controller and a device, where the controller controls the device to temporarily store block data which designate a logical address on a storage medium and a data length and/or a proxy device connected to a network and disposed between a client and a cache storage system for acting as a substitute for the client, wherein the proxy device acquires information for identifying the cache storage system from a computer, executes client's access to at least one storage device through the cache storage system in place of the client on the basis of the identifying information and sends a result of the execution to the client. All of the independent claims recite at least one of these features or this feature, if there is only one. In particular, independent claim 1 recites a cache storage system that includes a controller and a device, where the controller controls the device to temporarily store block data which designate a logical address on a storage medium and a data length. Independent

claim 16 recites a proxy device connected to a network and disposed between a client and a cache storage system for acting as a substitute for the client, wherein the proxy device acquires information for identifying the cache storage system from a computer, executes client's access to at least one storage device through the cache storage system in place of the client on the basis of the identifying information and sends a result of the execution to the client.

Therefore, since the references fail to disclose a cache storage system that includes a controller and a device, where the controller controls the device to temporarily store block data which designate a logical address on a storage medium and a data length, and/or a proxy device connected to a network and disposed between a client and a cache storage system for acting as a substitute for the client, wherein the proxy device acquires information for identifying the cache storage system from a computer, executes client's access to at least one storage device through the cache storage system in place of the client on the basis of the identifying information and sends a result of the execution to the client, it is submitted that all of the claims are patentable over the cited references.

Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, or credit any overpayment of fees, to the deposit account of Mattingly, Stanger & Malur, P.C., Deposit Account No. 50-1417 (referencing attorney docket no. 500.44034X00).

Respectfully submitted,

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